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READ THIS MANUAL FIRST!!!



1. Introduction

1.01 Congratulations! You have just purchased one of the finest telecommunications cartridges available. As you know, we call this product TelStar 64. TelStar 64 is designed to work with your Commodore 64 (C64) computer and either the 1600 VIC or 1650 Auto-dial modem. TelStar 64 will also work with RS232 type modems such as the DC Hayes Smart Modem if an RS232 adaptor board is supplied.

1.02 This document describes how to use TelStar 64 in user friendly detail. This document is intended to be a "hands on" tutorial in which you should actually perform the steps listed in the text descriptions. You may want to read the detailed technical manual also supplied with your TelStar 64 after you have read this manual. The TelStar 64 documentation may make this device appear as if it is complicated. Actually it is not. TelStar 64 has many features that once learned will make your terminal communications not only fun but versatile and easy to use.

2. TelStar 64 Installation and Execution

2.01 TelStar 64 can be installed and started as follows:

- a) Turn off power to your C64 computer.
- b) Insert the TelStar 64 Cartridge in the cartridge slot in the back of your C64. Be sure and observe the "This side up" label on the Telstar 64 cartridge.
- c) Turn on power to your C64 computer.
- d) Enter the time using the TI command (TI\$="hhmmss"). For example, if the time is 9:30, then enter TI\$="093000". Note: if you don't care about TelStar 64 keeping track of the time, then skip this step.
- e) Begin execution of TelStar 64 by first pressing down and holding the RUN/STOP key and then press the RESTORE key. (This keystroking will be referred here on in this document as "press RUN/STOP & RESTORE".

2.02 Observe that a Copyright message appears and also a status line at the top of the screen. The time will appear at the upper-right hand corner of the status line. The time will normally appear a few seconds after you begin execution of TelStar 64. So, don't worry if it does not immediately appear.

3. TelStar 64 Basic Operations

3.01 There are an awful lot of indicators in the status line listed in part 8 and described in more detail in the other TelStar 64 manual. They can not all be easily described at once, so lets describe a few now and the rest later. Lets do a few things. Press the " " key one time. Note that the status line shows a blinking "C". Press the " " key again and note that the blinking "C" turns off. The " " key is TelStar 64's control key and is active when the blinking "C" occurs. Don't be confused that the C64 has its own control key which is used to send special characters. In this document, when we refer to the control key, we mean the " " key and when we say press control n, we mean press and release the " " key and then the "n" key.

3.02 Note that there is an "L" in the status line. This "L" means we are in Local mode in which all outputting is local to your C64 and nothing is sent to the modem. It is best to be in Local mode while we are learning TelStar 64 basic operations. Later, when we want to send/receive data via the modem, we will set TelStar to Full or Half Duplex and the "L" will change to a "F" or "H".

3.03 Note that there is a solid non-blinking cursor present. This indicates that you are in character by character transmission mode. Each time you type a character, it is instantly transmitted. Screen editing functions such as cursor up, down, etc. will not function. The INS/DEL key will function like the normal DEL function as it removes the character to the left of the cursor and the CLR/HOME key will clear the screen. You can still cursor to a line on the screen, make a change using normal screen editing, and send the entire line. To do this, you must first enter the TELSTAR 64 line transmit mode. This is done via control "@" or control ">". (Control @: Press " " key then @ key.) When you type control @, the cursor will change from solid to blinking. The cursor will revert back to the solid cursor immediately after you press RETURN. Unlike the character by character mode, the line transmit mode waits until you type RETURN and then sends the whole line as a single burst of characters. Lets try it. In the character by character mode (solid cursor), type:

LINE XMIT MODE

then press RETURN.

Now enter line transmit mode via control @, cursor up to the line, and use normal screen editing functions to change XMIT in the line just typed to TRANSMIT. Then press RETURN. You may not have noticed it, but TelStar 64 retransmitted the whole correctly edited line. This feature is useful when you type in a complicated command which is rejected because of a single error. With this feature, you can edit out a mistake and resend the line. Easy as pie! Right? Wrong? Or would you rather play Interlude? (Note: If you know what Interlude is, you've been involved in personal computers a long time!)

3.04 The C64 provides a shift-lock key that converts characters to upper case. Unfortunately, it converts all characters including special symbols, RETURN, etc. TELSTAR 64 provides an Alpha case lock that only makes characters A thru Z upper case. Often an Alpha case lock is more useful. Alpha case lock is set via control RETURN - press " " then RETURN. Press control RETURN again and the Alpha case lock is cleared. Lets try it. Without using the shift key, type: "the stock market is going " then press control RETURN. Now type: "NOWHERE" then press control RETURN a second time, and type: "somewhere". Remember, control RETURN only makes A-Z uppercase. Your output from this example should appear as follows:
"the stock market is going NOWHERE somewhere".

3.05 Now lets use the control key (" ") to enter TelStar 64's menu - press " " and then "M". We call this control M. Note that this causes a full screen menu to appear. The menu shows which keys cause which options to be performed. For example, the "@" key allows you to set TelStars terminal parameters, "F" to set full-duplex mode, and so on. To select an option, just press the single character associated with the desired option. Do not press RETURN after the selection. Now that we are in the menu, lets do a few things. Look at the second line of the status line below the time at the characters "BELL=00:00:00". This indicates the time that the TelStar 64 is to alarm - just like an ordinary alarm clock. Since the alarm time is 00:00:00, the alarm is off. Lets set the alarm. Select menu option "t" for timer - don't press RETURN - just "t". Note that the cursor is now blinking. Enter a value one minute passed the current time. Example: Enter 07:46:00 if the time currently displayed is 07:45:00. Don't forget the colons - they must be entered. Press RETURN after your entry and then check your entry on the status line. If you made an error, just press "T" and try again. Now wait until the time equals the timers setting. When the time matches the timers, the screen will flash and a bell will sound. Sorry, only the screen flashes if you are using a monitor without sound. This feature is useful if you are connected to a time sharing computer system that charges by the hour and you don't want to get carried away with the charges. Maybe your wife says: "Leave that computer at 6:30 and come to supper or else!" If yours is like ours, you had better be there at 06:30:00.

3.06 Now lets change the colors on the screen. Remember you are still in the menu, and you know you are because the cursor is beside the message "ENTER SELECTION?". Press the "!" key. Note that the screen shows you which function key changes which screen area - border, background, character, and status line. You can rotate forward thru all 16 colors for each screen area, or rotate backward by holding down SHIFT and then pressing a function key. This is useful if you are looking for a nice color combination and you want to back up one. When you are done with the color selection feature, press RETURN to go back to the menu.

3.07 TelStar 64 will also let you enter up to 80 characters of text for each of the eight function keys (f1-f8). Lets enter someting for

the f1 key. Press f1, note that "f1:" appears, and on the next line is a blinking cursor. You can now enter some text - up to two lines or 80 characters. For example, enter: 77000,63011^{secret word}. This is an example logon to Compuserve - Don't actually try logging on with this as it is just an example and not a valid account.

3.08 Note the "↑" characters. These are special when used within a function key. When we press f1 outside of the menu, the text will be sent and the "↑" characters will be changed to RETURN characters.

3.09 Before we try the f1 key, lets first SAVE THE SETUP. Insure that you have a good diskette in your disk drive. Next press the "\$" key. This causes TelStar to write a file on your diskette that contains an image of all the current settings you've made - color, function keys, timer, nearly everything that is changable. Tomorrow when we turn the system back on, all we have to do is just enter the menu and press "*" to reload the setup file back off of disk and everything will be as we had them set.

3.10 Going back to the f1 key, lets exit the menu by pressing the "X" key. We are now out of the menu. Now press f1. Note that the following appears:

77000,73011
secret word

DA DA!!

3.11 All of these bells and whistles are fun but lets now log on to a bulletin board or some data base and do some telecommunicating. All this time we have been in local mode. Note the "L" in the status line to the left of the time. By local mode, we mean that all transmissions are kept "local" to the C64 and nothing is sent or received via the modem. To communicate with a bulletin board or some remote computer, we need to enter Full or Half Duplex Mode which allows TelStar 64 to send/receive characters to/from the modem. Most communications is in Full Duplex Mode so lets set TelStar for this mode. Press control "M" to enter the menu. Now press "F" to select Full Duplex. Note the "F" in the status line next to the time.

3.12 Now is where we have to do things differently because of the different types of modems that may be used with TelStar 64. Below will be described how to log on to a computer for three different modems: CBM 1650 Autodial Modem, VIC 1600 Modem, and the DC Hayes Smart Modem.

On The 1650 Autodial Modem

Set your 1650 Modem switches to Full Duplex ("F"), Originate ("0"), and

Data ("D"). Press "#" to select menu's dial a phone number feature. Note that the cursor blinks. Type the phone number of the computer you wish to communicate with. For example, enter 723-1234. Punctuation characters such as the "-" are allowed in the phone number as TelStar will simply ignore them and dial only numbers. Next press RETURN and then immediately press "X". The reason for the "X" is to cause TelStar to exit from the menu when the number is completely dialed. Watch the status line, the phone status (the blinking indicator in the middle of the second line) should change to a blinking "C" when a carrier from the computer is detected. On your 1650 modem, a red LED indicator should also light when the called computers carrier is detected. (Carrier is a term referring to the signal that the called computer sends when it answers the phone.) When you get the carrier, you can enter whatever appropriate logon procedure is required. If you get a busy signal or no answer, you can reenter the menu and press "-" to hang up the phone. There is no visual indicator for the busy signal or no answer. You will just have to assume this occurs if the blinking "C" carrier indicator does not appear a few seconds after the phone number has been completely dialed.

On The 1600 Modem

Set your 1600 modem switch to Originate ("0") and Press "X" to exit the TelStar 64 menu. Manually dial the phone number. When the LED lamp on the modem lights, then the carrier signal from the called computer is sensed. Do not hang up the phone. At this point, you can enter whatever appropriate logon procedure is required. For 1600 modems, the status lines phone status indicator and the "#" menu option does not apply as this type modem does not incorporate the auto dialing feature.

On The Hayes Smart Modem

Press "X" to exit the TelStar 64 menu. Enter the Hayes command to dial a phone number - i.e. AT dp phone number. Then press RETURN. Consult your Hayes modem manual for further details. When this is done, the Hayes modem will respond with "CONNECTED" if successful. At this point, you can enter whatever appropriate logon sequence is required. For Hayes modems, the phone status indicator and the "#" menu option does not apply as the Hayes modem incorporates auto dialing via its own internal commands.

4. TelStar 64 Downloading, Printing, Uploading

4.01 The following shows the steps to download, to print out a file, and to upload a file. One thing to keep in mind is that no output is sent to the connected computer while you are in the menu. Only output generated while out of the menu is sent to the connected computer.

So, you can feel sure that when the menu and associated menu functions text appears on the screen, it will not be sent to the connected computer but only to the C64 screen for your viewing.

Steps Illustrating How to Download a File:

Assume one wants to download the file called "MAIL" and store in ASCII format. Note: Even though the following is written for usage with disk, it applies also for use with the Cassette Deck. For tape, be sure and select menu item "1" to enter tape I/O mode.

- a) Enter Menu via control M or RUN/STOP & RESTORE.
- b) Select Full or Half Duplex operation - "F" or "H".
- c) Select "W" to write to disk, filename in quotes as: "MAIL", with filetype equal to "3" for ASCII.
Observe that the status line displays ">D3" indicating that you are writing to disk. (">T3" for tape.)
- d) Exit Menu via "X".

Upon exiting the menu, the write to disk buffer is opened and whatever is received via the modem will be captured and stored in the write disk buffer.

- e) Do whatever is necessary to cause the file "MAIL" to be displayed on the screen. Whatever appears on the screen (with the exception of the Menu and Tape "Press Play and Record" etc. type messages) will be stored in the write disk buffer.
- f) When the file transfer has been completed, enter the menu.
- g) Select "C" to close the file then "W" (Write) as the response to which type of close.

At this point the file is contained on disk or tape. When you log off, you can print the file to your printer as follows:

Steps Illustrating How to Print a File:

- a) Enter the menu.
- b) Select "L" to enter Local Mode.
(Local mode does not send to the modem.)
- c) Select "P" to open the Printer Buffer.
Observe that a blinking "P" is in the status line letting you know that whatever appears on the screen while out of the menu will be stored in the printer buffer. While capturing data in the printer buffer, you can return back to the menu and select "P" again to turn off the storing of data

in the printer buffer. Later you can turn it back on.
Note: Nothing is actually printed until you close the printer buffer via the "P" selection.

- d) Select "R" to read the disk file, filename = "MAIL", with filetype as "3" for ASCII.
- e) Exit the menu via "X".

Upon exiting the menu, the disk will be accessed and the file "MAIL" will be displayed on the screen.

The Disk Read file will be automatically closed when end of file is detected, and the screen will flash along with an audible tone. This insures that you are notified when the read operation is completed.

- f) Enter the menu.
- g) Select "P" to turn off the printer.
Observe that the blinking "P" turns off.
- h) Select "C" to close and "P" in response to which type of close.

At this point, the printer will print out the file.

The following can be performed if you want to upload the file "MAIL" back to the connected computer:

Steps Illustrating How to Upload a File:

- a) Enter the menu.
- b) Select Full or Half Duplex operation - "F" or "H".
- c) Select "R" to read from disk, filename in quotes as "MAIL", filetype = "3" for ASCII.
Observe that the status line displays "<D3" indicating that you are reading from disk. ("<T3" for tape.)
- d) Exit the menu.

Upon exiting the menu, the disk will be accessed and the file "MAIL" will be displayed on the screen and also transferred to the connected computer. The screen will flash and an audible tone will sound when the file has been completely transferred.

When you upload in Full-Duplex, the data on the screen is a copy of that which was received by the connected computer. In other words, each character is transmitted by TelStar 64 to the connected computer and then the connected computer resends each character back to TelStar 64 which is displayed on the Commodore 64's screen. When you upload data, sometimes the data on the screen will contain errors. The reason for this is because of the way the Commodore 64's Operating System was designed. The CBM 64 can sometimes get overloaded and drop bits of received data especially when data is being sent rapidly. Normal typing causes no problem. But fear not,

your uploaded file should be letter perfect unless some other problem occurred (such as line hit, line noise, etc.).

The above procedure applies also to the other filetypes. For example for Basic files, simply use filetype = "0".

5. TelStar 64 Disk Commands

5.01 TelStar 64 has a built in disk wedge function. The disk wedge is Commodores standard for abbreviated disk command entry. To use this function, enter the menu (either control "M" or RUN/STOP & RESTORE). Press "D" for Disk Command. The cursor changes to a blinking cursor. All TelStar 64 wedge commands must be enclosed in quotes. Example: "i". After each command is finished, the message "PRESS SPACE!" appears. This freezes the disk output on the screen until you press the space bar to go back to the menu. Instead of entering a command, you can instead just press RETURN and the disk error channel will be displayed. Go ahead and press just RETURN. Observe that the error channel shows in textual form what the status of the disk drive is. You may have observed a "73,cbm dos v2.6 1541,00,00", or "00, ok,00,00" message. Press the space bar to return back to the menu.

5.02 Its always good practice to send an initialize command each time you insert or change disks in your disk drive. This is also useful to overcome the problematic "DRIVE NOT READY" error channel message. To initialize a disk, press the "d" menu selection, note that the cursor starts blinking, then type: "i". Be sure and enter the quotes and use lower case "i". Then press RETURN. Note that your disk starts up and the red lamp momentarily lights. Press the space bar to return to the menu.

5.03 Now lets display the directory. Press "d", then type "\$", and then press RETURN. Observe that the disk directory appears on the screen.

5.04 Other DOS wedge commands that may be entered are:

"n:name,id" - To format a brand new disk. Any data or files on the disk are lost. name is the name you want to appear in the directory header, and id is a unique two character disk id code. Consult your disk drive manual for futher details. Be careful, you don't want to issue this command if the disk has data you want to keep.

"s:name" - To scratch (delete) a file.

"c:newfile=oldfile" - Make a copy of disk file "oldfile" named as "newfile".

"r:newname=oldname" - Rename a disk file.

"\$" - Display the disk directory.

RETURN - Display the disk drive error channel.

5.05 You can issue a disk command while you are logged on to another computer. Output generated by the disk command or any other function while in the menu is not sent to the connected computer - it only appears on the C64's screen.

6. Use with DOW JONES Data Base

6.01 The Dow Jones Data Base does not use the industry-wide standard XON/XOFF ASCII protocol that TelStar 64 uses. Before you log on to the Dow Jones, you should do the following to disable TelStars XON/XOFF feature:

- Enter the Menu
- Select ":" to change the XOFF Character.
- Enter \$13=00 then press RETURN.

6.02 If you fail to do the above, the keyboard will lock up after the first Dow Jones pause and the status line will display a blinking "W" where the control indicator normally appears. This can be overridden by pressing the cursor down key but you will have to press cursor down for each and every pause until you disable the XOFF as described above.

6.03 The Dow Jones Data Base software sends its transmission in a different color than that you send to it. This can be overridden by changing certain character codes (via menu ":" selection) to nulls for each of the following: \$05=00 \$12=00 \$1C=00 \$1E=00 \$1F=00. You need to select ":" for each of the above. When done, be sure and save the setup ("\$") so that you can later load these changes back in.

7. Use with IBM "WYLBUR" Systems

7.01 If you use TelStar 64 with the IBM "WYLBUR" System, you should enter the menu and do the following:

- Press and hold down the Commodore key, then

press the "w" key.

b) Observe that a lower case "w" appears in the upper left part of the status line.

If you press the Commodore key and "w" again, the WYLBUR mode will be turned off and the lower case "w" in the status line will disappear.

7.02 The IBM "WYLBUR" mode does not use the XOFF protocol. It assumes that TelStar 64 should wait for an XON character after each RETURN is transmitted. If a long wait occurs, you will note that the control key indicator (blinking "C") will change to a blinking "W" until the XON character is received. This blinking "W" can be manually overridden by pressing the cursor down key.

8.0 Description of the Status Line

The following is a description of the Status Line. Consult the other TelStar manual for details.

15

0 1 . 2 3 4 5 6 7 8 9 10

 PFO I00 000 C P <Dn >Dn ? F 12:14:06
 0:STARTREK.BAS H 8 BELL = 12:30:00

 11 12 13 14

Callout	Description
0	Data reception error indicators: P = Parity, F = Framing error, O = Overrun error. If no error then this contains "*****".
1	Hex Code of current ASCII character received from the modem.
2	Hex Code of current ASCII character transmitted to the modem.
3	Normally blank. If this position ever changes to a '0', then there has been an overflow in TELSTAR 64's modem receiver buffer. TELSTAR 64 incorporates a 256 character buffer for the modem receiver. Whenever this buffer exceeds 200 characters, an ASCII XOFF protocol control code is automatically sent to the host requesting that transmission be momentarily halted until TELSTAR 64 sends an XON protocol code. When the buffer is flushed below 30 characters, the XON is sent. If the host

computer does not recognize the XOFF and the buffer fills passed 256 characters, some data will be lost. You will be informed via the '0' in the status line. This condition should never occur if the host computer properly processes ASCII XON and XOFF control codes.

4 Normally blank. When a blinking 'C' occurs, this indicates that the " " key (Control Key) has been pressed.

When a blinking 'W', this indicates that the host computer sent an ASCII XOFF requesting TELSTAR 64 to wait until an XON before resuming transmission. Think of the 'W' as meaning 'Host Wait Request'. You can override this 'W' condition by pressing the cursor down key.

5 Normally a blank. When a blinking 'P', this indicates that the printer is turned on and output will be directed to it.

6 Normally a blank. When >Dn appears, this indicates that data is being saved to disk. n is a code (0-4) which indicates the type file being saved.

7 If >Tn then data will instead be saved to tape.

Normally a blank. When <Dn appears, this indicates that data is being read from disk. n is a code (0-4) which indicates the type file being read.

8 If <Tn then data will instead be read from tape.

This is the error message indicator. All messages which have this character as the first character of a line will be displayed in inverse video.

9 Transmission mode. L = Local Mode, F = Full Duplex, H = Half Duplex, E = Echo Mode.

10 Current time displayed in hours/minutes/seconds.

11 Any disk filename or disk command entered appears in this position.

12 Phone Line Status (for 1650 Modem). H = Phone is "hangup", P = Phone is "picked up", C = Host carrier detected.

13 I/O Device that TELSTAR 64 is to use: 8 = Disk Drive, 1 = Cassette Tape.

14 Time at which screen will flash and an audible tone will sound (Assuming your TV or Color Monitor has sound.)

15 WYLBUR mode indicator. If contains "w" then in IBM WYLBUR mode.